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AGRICULTURAL MEMORANDUM NO 478

Drainage efficiency and effect of lateness in spring cultivations - NORTH EAST

L P Smith

The analysis of Ag Memos 475, 476 and 477 has been summarized for six stations in the north-east:

Holme-on-Spalding Moor (ER)
Nottingham
Cranwell (Lincs)
Melton Mowbray (Leics)
Sandringham
Sprowston (N Norfolk)

The tables show how often, in 20 years 1949 - 1968, each of the days in the 7 day, 10 day or 14 day schedules, under four qualities of drainage A (good), B (moderate), C (poor), D (bad) fell into various calendar weeks:

(1) Before 15 March.

(2) 15-21 March etc until 10-16 May.

Any days then unaccounted for were termed "LOST".

Milthorpe and Ivins, in their book "Growth of Cereals & Grasses" give figures for loss of yield due to late sowing of barley, from which the following model was adopted.

Days falling in week				
	March 15-21	5% loss	)	
	" 22-28	10% loss	)	ie 5% per week
	" 29- April 4	15% loss	)	
	April 5-11	22½% loss	)	
	" 12-18	30% loss	)	ie 7½% per week
	" 19-25	37½% loss	)	
	" 26- May 2	47½% loss	)	
	May 3- 9	57½% loss	)	ie 10% per week
	" 10-16	67½% loss	)	
	LOST	100% loss		

This enabled the percentage loss of yield over the 20 years to be estimated for each schedule and each class of drainage.

These figures are given in the tables.

Any comments or suggestions on this paper should be referred to the author.

Meteorological Office
Bracknell

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7-day Schedules

Date	Drainage	Holme-on-Spalding Moor A	B	C	D	Nottingham A	B	C	D
Before March 15		121	107	88	73	128	115	97	83
March 15-21		7	17	23	28	7	15	23	29
" 22-28		6	6	8	12		4	10	8
" 29- 4		4	5	10	12	2	1	3	8
April 5-11		1		4	6				2
" 12-18		1	2	1	3	2	1		
" 19-25			3	6	6	1	4	7	6
" 26- 2									4
May 3- 9									
" 10-16									
LOST									
Percentage Loss of Yield		1.5	2.8	5.0	6.4	1.2	2.2	3.7	5.7

		Cranwell A	B	C	D	Melton Mowbray A	B	C	D
Before March 15		120	105	83	69	120	107	87	76
March 15-21		14	23	27	32	11	19	31	33
" 22-28			2	8	10	4	4	4	7
" 29- 4		1		4	5	1			3
April 5-11		1	3	5	4	1	1	6	7
" 12-18		2	1	4	6	2	1		1
" 19-25		2	6	7	10	1	7	8	6
" 26- 2					1		1	4	4
May 3- 9									2
" 10-16				2	3				1
LOST									
Percentage Loss of Yield		1.7	3.3	6.5	8.8	1.6	3.5	5.9	7.6

		Sandringham A	B	C	D	Sprowston A	B	C	D
Before March 15		116	103	81	63	125	113	90	73
March 15-21		18	24	32	39	12	18	27	31
" 22-28		3	5	8	6	2	4	4	4
" 29- 4		1	2	6	11		1	5	8
April 5-11			3	6	6		1	1	2
" 12-18		2	1	1	5	1	1	6	10
" 19-25			2	4	6		2	5	7
" 26- 2					1			2	4
May 3- 9				1	1				1
" 10-16				1	2				
LOST									
Percentage Loss of Yield		1.3	2.7	5.5	8.4	0.8	1.9	5.3	8.4

10-day Schedules

Date	Drainage	Holme-on-Spalding Moor A	B	C	D	Nottingham A	B	C	D
Before March 15		150	130	102	83	162	140	118	97
March 15-21		24	32	37	38	20	13	19	17
" 22-28		11	13	18	20	10	6	13	17
" 29- 4		10	13	16	22	2	1	3	9
April 5-11		1	4	11	10		1		3
" 12-18		2	2	6	10	2	8	7	6
" 19-25		2	6	7	13	4		2	6
" 26- 2				2	1				2
May 3- 9					2			1	2
May 10-16									
LOST				1	1				
Percentage loss of Yield		2.7	4.3	7.4	10.0	2.2	3.6	5.3	8.4

	Cranwell A	B	C	D	Melton Mowbray A	B	C	D
Before March 15	141	121	94	78	154	132	110	94
March 15-21	35	37	39	40	25	38	38	36
" 22-28	9	15	18	16	9	8	14	15
" 29- 4	4	6	11	14	1		4	12
April 5-11	4	6	7	8	2	7	10	13
" 12-18	2	4	10	12	2	1	5	8
" 19-25	5	7	11	12	7	9	8	6
" 26- 2		2	3	11		4	5	7
May 3- 9							2	2
May 11-16		2	6	5		1	2	1
LOST			1	4			2	6
Percentage loss Yield	3.3	5.9	8.3	14.1	3.0	5.3	8.8	11.4

	Sandringham A	B	C	D	Sprowston A	B	C	D
Before March 15	143	116	86	67	149	132	103	85
March 15-21	33	42	45	46	31	35	38	38
" 22-28	10	12	11	11	7	8	8	9
" 29- 4	5	11	18	18	6	8	13	13
April 5-11	3	8	10	9	1	1	7	6
" 12-18	3	4	11	23	5	7	13	20
" 19-25	3	5	8	7	1	9	10	10
" 26- 2		1	5	9			6	11
May 3- 9		1	1	2			2	3
May 10-16			3	4				1
LOST			1	4				4
Percentage loss Yield	3.0	5.5	10.5	14.9	2.6	4.7	8.9	13.7

14-day Schedules

Date	Drainage	Holme-on-Spalding Moor A	B	C	D	Nottingham A	B	C	D
Before March 15		168	143	113	93	186	159	131	107
March 15-21		48	47	45	43	46	50	52	54
" 22-28		24	28	29	25	24	28	30	22
" 29- 4		21	26	31	33	10	21	25	21
April 5-11		7	15	13	13	2	5	20	22
" 12-18		6	10	18	23	2	1	5	20
" 19-25		6	9	15	20	9	9	9	9
" 26- 2				5	8	1	5	3	9
May 3- 9				5	6				4
" 10-16				1	6		2	3	5
LOST				5	10			2	7
Percentage Loss of Yield		4.8	6.7	12.4	17.2	3.5	6.1	8.6	14.0

	Cranwell A	B	C	D	Melton Mowbray A	B	C	D
Before March 15	158	132	103	86	183	153	122	102
March 15-21	48	50	45	43	43	47	47	47
" 22-28	30	28	22	19	22	25	22	16
" 29- 4	17	17	24	20	5	13	18	20
April 5-11	8	13	17	15	9	12	15	22
" 12-18	7	14	19	31	3	8	17	24
" 19-25	8	9	14	13	10	9	9	10
" 26- 2	2	7	20	24	4	4	12	14
May 3- 9				8	1	3	4	4
" 10-16	2	8	7	9		4	4	5
LOST		2	9	12		2	10	16
Percentage Loss of Yield	6.1	10.4	16.4	19.9	5.1	8.4	14.2	18.3